



Measurement of RF Emissions from a  
RCRU Transceiver and Computer Peripheral

For : Responsive Innovations  
Akron, OH

P.O. No. : 1065

Date Received: July 31, 2006

Date Tested : July 31, 2006 through August 8, 2006

Test Personnel: Mark E. Longinotti

Specification : FCC "Code of Federal Regulations" Title 47  
Part 15, Subpart B, Class B

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<b>THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF ELITE ELECTRONIC ENGINEERING INCORPORATED.</b>
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**Revision History**

Revision	Date	Description
—	October 2, 2006	Initial release

## Measurement of RF Emissions from the Transceiver and Computer Peripheral, Part No. RCRU

### **1.0 INTRODUCTION:**

**1.1 Scope of Tests** - This report presents the results of the RF emissions measurements performed on the Transceiver and Computer Peripheral, Part No. RCRU, Serial No. 3, (hereinafter referred to as the test item). The test item was manufactured and submitted for testing by Responsive Innovations located in Akron, OH.

**1.2 Purpose** - The test series was performed to determine if the test item meets the conducted and radiated RF emission requirements of the FCC "Code of Federal Regulations" Title 47, Part 15, Subpart B, Sections 15.107 and 15.109 for Class B digital devices. Testing was performed in accordance with ANSI C63.4-2003.

The test item was originally tested as a transceiver, Model No. RCRF-01. See Elite Electronic Engineering, Inc. Engineering Test Report 35112-02. A USB Port was added to the test item so that it could transfer data to and from a computer. When the USB Cable is connected to the test item, it cannot transmit or receive.

**1.3 Deviations, Additions and Exclusions** - There were no deviations, additions to, or exclusions from the test specification during this test series.

**1.4 Subcontractor Identification** - This series of tests was performed by Elite Electronic Engineering Incorporated of Downers Grove, Illinois. The laboratory is accredited by the National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP). NVLAP Lab Code: 100278-0.

**1.5 Laboratory Conditions** - The temperature at the time of the test was 23°C and the relative humidity was 61%.

### **2.0 APPLICABLE DOCUMENTS:**

The following documents of the exact issue designated form part of this document to the extent specified herein:

- Federal Communications Commission "Code of Federal Regulations", Title 47, Part 15, Subpart B for Class B digital devices, dated 1 October 2005
- ANSI C63.4-2003, "American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9



kHz to 40 GHz"

**3.0 TEST ITEM SETUP AND OPERATION:**

**3.1 General Description** - The test item is the Transeiver and Computer Peripheral, Part No. RCRU. A block diagram of the test item setup is shown as Figure 1.

**3.1.1 Power Input** - The test item obtained 3VDC power from internal batteries.

**3.1.2 Peripheral Equipment** – The following peripheral equipment was submitted with the test item:

Item	Description
Laptop Computer	Dell PPI Inspiron 7000
AC Adaptor for computer	Dell ADP-70BB Model PA-4, P/N: 1243C, 20VDC output

**3.1.3 Signal Input/Output Leads** - The following interconnect cables were submitted with the test item:

Item	Description
USB Cable	1.75 meters standard USB Cable

**3.1.4 Grounding Considerations** - The test item was ungrounded during the tests.

**3.1.5 Frequency of Test Item** -The laptop computer that was used to communicate with the test item was equipped with a microprocessor that operated at a frequency of 300MHz. In accordance with 47 CFR 15.33 radiated emissions measurements were made up to 2GHz.

**3.2 Operational Mode** - For all tests the test item and all peripheral equipment were placed on a 80cm high non-conductive stand. The test item and all peripheral equipment were energized. The test item was programmed so that it would continuously communicate via the USB cable with the laptop computer.

**3.3 Test Item Modifications** - No modifications were required for compliance to the FCC 15B Class B requirements.

**4.0 TEST FACILITY AND TEST INSTRUMENTATION:**

**4.1 Shielded Enclosure** - All tests were performed in a 32ft. x 20ft. x 18ft. hybrid ferrite-tile/anechoic absorber lined test chamber. With the exception of the floor, the reflective surfaces of the shielded chamber are lined with ferrite tiles on the walls and ceiling. Anechoic absorber material is installed over the ferrite tile. The floor of the chamber is used as the ground plane. The chamber

complies with ANSI C63.4-2003 for site attenuation.

**4.2 Test Instrumentation** - The test instrumentation and auxiliary equipment used during the tests are listed in Table I. All equipment was calibrated per the instruction manuals supplied by the manufacturer.

Conducted emission tests were performed with a spectrum analyzer in conjunction with a quasi-peak adapter.

Radiated emissions were performed with a spectrum analyzer. This receiver allows measurements with the bandwidths and detector function specified by the FCC.

**4.3 Calibration Traceability** Test equipment is maintained and calibrated on a regular basis. All calibrations are traceable to the National Institute of Standards and Technology (NIST).

**4.4 Measurement Uncertainty** - All measurements are an estimate of their true value. The measurement uncertainty characterizes, with a specified confidence level, the spread of values which may be possible for a given measurement system.

The measurement uncertainty budgets were based on guidelines in "ISO Guide to the Expression of Uncertainty in Measurements" and NAMAS NIS81 "The Treatment of Uncertainty in EMC Measurements".

The measurement uncertainty for these tests is presented below:

Conducted Emission Measurements		
Combined Standard Uncertainty	1.07	-1.07
Expanded Uncertainty (95% confidence)	2.1	-2.1

Radiated Emission Measurements		
Combined Standard Uncertainty	2.26	-2.18
Expanded Uncertainty (95% confidence)	4.5	-4.4

**5.0 REQUIREMENTS, PROCEDURES AND RESULTS:**

**5.1 Powerline Conducted Emissions**

**5.1.1 Requirements** –All radio frequency voltages on the power lines of a Class B device shall be below the values shown below when using a quasi-peak detector:

**CONDUCTED LIMITS FOR CLASS B DEVICE**

Frequency MHz	RFI Voltage dBuV(QP)	RFI Voltage dBuV(Average)
0.15-0.5	66 decreasing with logarithm of frequency to 56	56 decreasing with logarithm of frequency to 46
0.5-5	56	46
5-30	60	50

Note 1: The lower limit shall apply at the transition frequencies.

Note 2: If the levels measured using the QP detector meet both the QP and the Average limits, the test item is considered to have met both requirements and measurements do not need to be performed using the Average detector.

**5.1.2 Procedures** - The interference on each power lead was measured by connecting the measuring equipment to the appropriate meter terminal of the LISN. The meter terminal of the LISN not under test was terminated with 50 ohm. Measurements were first made over the entire frequency range from 150kHz through 30MHz with a peak detector and the results were automatically plotted. The data thus obtained was then searched by the computer for the highest levels. Quasi-peak measurements were automatically performed at the frequencies selected from the highest peak measurements, and the results printed.

**5.1.3 Results** - The plots of the peak preliminary conducted voltage levels on each power line from the Dell laptop computer **without** the test item installed in the USB port, are presented on pages 16 and 17. The conducted limits for Class B devices are shown as a reference. The final quasi-peak results are presented on pages 18 and 19.

The plots of the peak preliminary conducted voltage levels on each power line from the Dell laptop computer **with** the test item installed in the USB port and continuously communicating with the laptop computer, are presented on pages 20 and 21. The conducted limits for Class B devices are shown as a reference. The final quasi-peak results are presented on pages 22 and 23.

As can be seen from the data, all conducted emission levels met the requirements for Class B devices. The emissions level closest to the limit (worst case) occurred at 1.328MHz. The emissions level at this frequency was 7.4dB within the limit.

**5.2 Radiated Measurements**

**5.2.1 Requirements** - All emanations from a Class B device shall be below the levels shown on the following table:

**RADIATION LIMITS FOR CLASS B DEVICE**

Frequency MHz	Distance between Test Item And Antenna in Meters	Field Strength uV/m	Field Strength dBuV/m
30-88	3	100	40
88-216	3	150	43.5
216-960	3	200	46
Above 960	3	500	54

Note: The tighter limit shall apply at the edge between the two frequency bands.

Per CFR, Title 47, Part 15.109(g), as an alternative to the radiated emissions limits shown above, digital devices may be shown to comply with the limits contained in CISPR 22 (EN 55022). However, if in accordance with CFR, Title 47, Part 15.33, measurements must be performed above 1000MHz, compliance above 1000MHz shall be demonstrated with the emission limits for FCC Class B devices.

All emanations from an EN 55022 Class B device shall be below the values shown below when using a quasi-peak detector:

Frequency MHz	Measuring Distance (meters)	Quasi-peak limits (dBuV/m)
30 to 230	10	30
230 to 1000	10	37

Note 1: The lower limit shall apply at the transition frequency.

**5.2.2 Procedures** - All tests were performed in a 32ft. x 20ft. x 18ft. hybrid ferrite-tile/anechoic absorber lined test chamber. The walls and ceiling of the shielded chamber are lined with ferrite tiles. Anechoic absorber material is installed over the ferrite tile. The floor of the chamber is used as the ground plane. The chamber complies with ANSI C63.4-2003 for site attenuation.

The shielded enclosure prevents emissions from other sources, such as radio and TV stations from interfering with the measurements. All powerlines and signal lines entering the enclosure pass through filters on the enclosure wall. The powerline filters prevent extraneous signals from entering the enclosure on these leads.

Since a quasi-peak detector and an average detector require long integration times, it is not practical to automatically sweep through the quasi-peak and average levels. Therefore, radiated



emissions from the test item were first scanned using a peak detector and automatically plotted. The frequencies where significant emission levels were noted were then remeasured using the quasi-peak detector or average detector.

The broadband measuring antenna was positioned at a 3 meter distance from the test item. The frequency range from 30MHz to 1GHz was investigated using a peak detector function with the bilog antenna at several heights, horizontal and vertical polarization, and with several different orientations of the test item with respect to the antenna. The frequency range from 1GHz to 2GHz was investigated using a peak detector function with the double ridged waveguide antenna at several heights, horizontal and vertical polarization, and with several different orientations of the test item with respect to the antenna. The maximum levels for each antenna polarization were plotted.

Final radiated emissions were performed on all significant broadband and narrowband emissions found in the preliminary sweeps using the following methods:

- 1) Measurements from 30MHz to 1GHz were made using a quasi-peak detector and a broadband bilog antenna. Measurements above 1GHz were made using an average detector and a broadband double ridged waveguide antenna.
- 2) To ensure that maximum or worst case, emission levels were measured, the following steps were taken:
  - a) The test item was rotated so that all of its sides were exposed to the receiving antenna.
  - b) Since the measuring antenna is linearly polarized, both horizontal and vertical field components were measured.
  - c) The measuring antenna was raised and lowered from 1 to 4 meters for each antenna polarization to maximize the readings.
  - d) For hand-held or body-worn devices, the test item was rotated through three orthogonal axes to determine which orientation produces the highest emission relative to the limit.

**5.2.3 Results** - The preliminary plots are presented on pages 24 through 27. The plots are presented for a reference only, and are not used to determine compliance.

The final radiated levels are presented on pages 28 and 29. As can be seen from the data, all emissions measured from the test item were within the specification limits. The emissions level closest to the limit (worst case) occurred at 195.43MHz. The emissions level at this frequency was 3.5dB within



the limit. See data pages 28 and 29 for details. Photographs of the test configuration which yielded the highest or worst case, radiated emission levels are shown on Figure 3.

**6.0 OTHER TEST CONDITIONS:**

**6.1 Test Personnel and Witnesses** - All tests were performed by qualified personnel from Elite Electronic Engineering Incorporated.

**6.2 Disposition of the Test Item** - The test item and all associated equipment were returned to Responsive Innovations upon completion of the tests.

**7.0 CONCLUSIONS:**

It was determined that the Responsive Innovations Transceiver and Computer Peripheral, Part No. RCRU, Serial No. 3, did fully meet the conducted radio interference requirements of Section 15.107 and the radiated interference requirements of Section 15.109 of the FCC "Code of Federal Regulations" Title 47, Part 15, Subpart B for Class B equipment.

**8.0 CERTIFICATION:**

Elite Electronic Engineering Incorporated certifies that the information contained in this report was obtained under conditions which meet or exceed those specified in the test specifications.

The data presented in this test report pertains to the test item at the test date. Any electrical or mechanical modification made to the test item subsequent to the specified test date will serve to invalidate the data and void this certification.

This report must not be used to claim product endorsement by NVLAP or any agency of the US Government.



TABLE I: TEST EQUIPMENT LIST

ELITE ELECTRONIC ENG. INC.								Page: 1
Eq ID	Equipment Description	Manufacturer	Model No.	Serial No.	Frequency Range	Cal Date	Cal Inv	Due Date
Equipment Type: ACCESSORIES, MISCELLANEOUS								
XZG4	ATTENUATOR/SWITCH DRIVER	HEWLETT PACKARD	11713A	2223A01683	---			N/A
Equipment Type: AMPLIFIERS								
APK4	PREAMPLIFIER OPT H02	HEWLETT PACKARD	8449B	3008A00329	1-26.5GHZ	01/31/06	12	01/31/07
Equipment Type: ANTENNAS								
NTA0	BILOG ANTENNA	CHASE EMC LTD.	BILOG CBL611	2057	0.03-2GHZ	08/21/06	12	08/21/07
NWF0	RIDGED WAVE GUIDE	EMCO	3105	2035	1-12.4GHZ	10/01/05	12	10/01/06
Equipment Type: ATTENUATORS								
TIE9	10DB, 25W ATTENUATOR	WEINSCHEL CORP.	46-10-34	BH7997	DC-18GHZ	12/05/05	12	12/05/06
Equipment Type: CONTROLLERS								
CDS2	COMPUTER	GATEWAY	MFATXPNT	NMZ 0028483108	1.8GHZ			N/A
Equipment Type: PROBES; CLAMP-ON & LISNS								
PLL2	50UH LISN 462D	ELITE	462D/70A	003	0.01-400MHZ	01/09/06	12	01/09/07
PLL5	50UH LISN 462D	ELITE	462D/70A	006	0.01-400MHZ	03/21/06	12	03/21/07
Equipment Type: PRINTERS AND PLOTTERS								
HRE1	LASER JET 5P	HEWLETT PACKARD	C3150A	USHB061052	---			N/A
Equipment Type: RECEIVERS								
RACA	RF PRESELECTOR	HEWLETT PACKARD	85685A	2926A00980	20HZ-2GHZ	02/11/06	12	02/11/07
RAEC	SPECTRUM ANALYZER	HEWLETT PACKARD	8566B	3014A06690	100HZ-22GHZ	02/10/06	12	02/10/07
RAF5	QUASISPEAK ADAPTOR W/ RECI	HEWLETT PACKARD	85650A	2043A00151	0.01-1000MHZ	02/11/06	12	02/11/07
RAKG	RF SECTION	HEWLETT PACKARD	85462A	3549A00284	0.009-6500MHZ	11/22/05	12	11/22/06
RAKH	RF FILTER SECTION	HEWLETT PACKARD	85460A	3448A00324	---	11/22/05	12	11/22/06

Cal. Interval: Listed in Months I/O: Initial Only N/A: Not Applicable  
 Note 1: For the purpose of this test, the equipment was calibrated over the specified frequency range, pulse rate, or modulation prior to the test or monitored by a calibrated instrument.

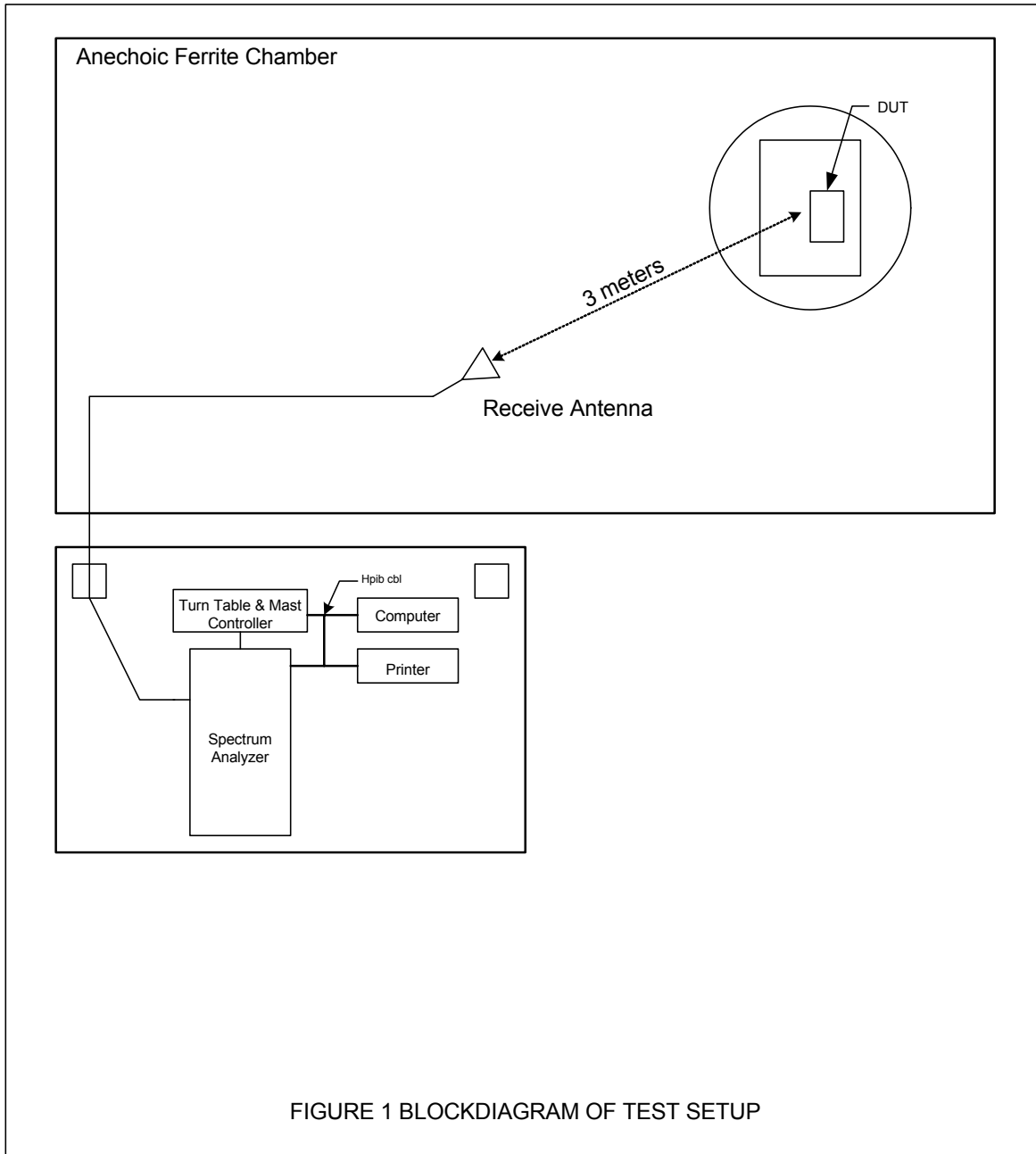
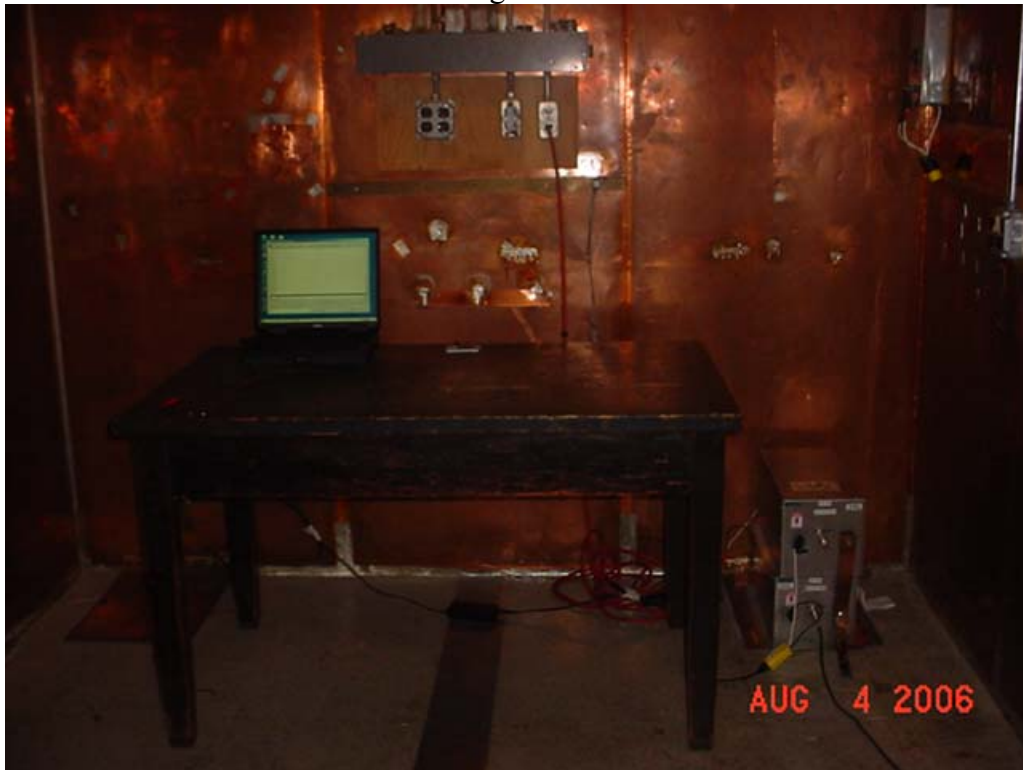


Figure 2



Test Setup for Conducted Emissions

Figure 3a



Test Setup for Radiated Emissions, 30MHz to 1GHz – Horizontal Polarization



Test Setup for Radiated Emissions, 30MHz to 1GHz – Vertical Polarization

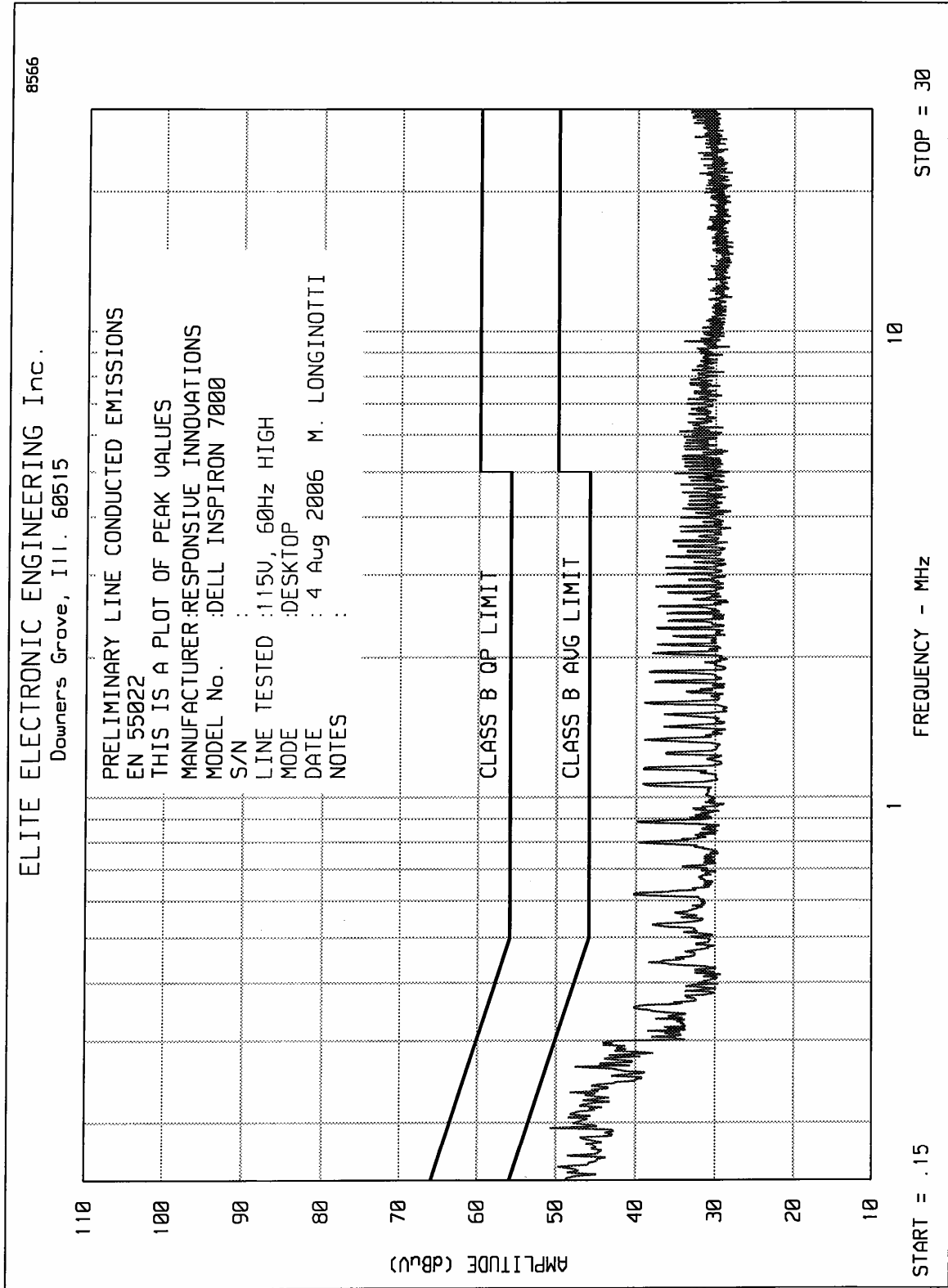
Figure 3b



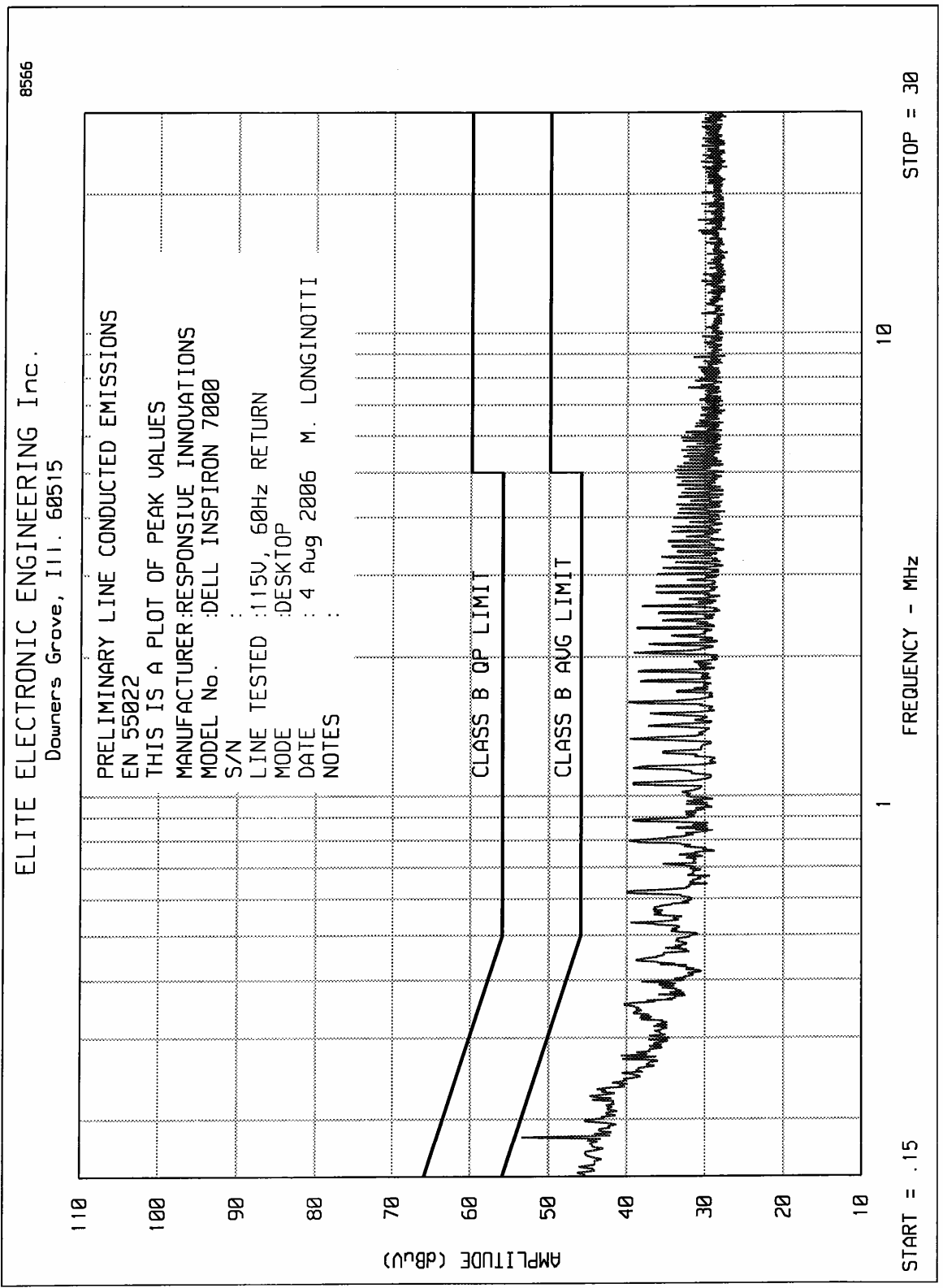
Test Setup for Radiated Emissions, 1GHz to 2GHz – Horizontal Polarization



Test Setup for Radiated Emissions, 1GHz to 2GHz – Vertical Polarization









ETR No.  
ELITE ELECTRONIC ENGINEERING CO.

MANUFACTURER : RESPONSIVE INNOVATIONS  
MODEL : DELL INSPIRON 7000  
S/N :  
SPECIFICATION : EN 55022, CLASS B  
TEST : LINE CONDUCTED EMISSIONS  
LINE TESTED : 115V, 60Hz HIGH  
MODE : DESKTOP  
DATE : 4 Aug 2006  
NOTES :  
RECEIVER : HP 8566 w/ HP85650A QP ADAPTOR  
VALUES MEASURED WITH QP DETECTOR USING 9kHz BANDWIDTH

FREQUENCY MHz	METER RDG. dBuV	QP LIMIT dBuV	AVG RDG dBuV	AVG LIMIT dBuV	NOTES
.199	38.7	63.7		53.7	
.266	28.9	61.2		51.2	
.355	35.7	58.8		48.8	
.620	36.1	56.0		46.0	
.797	34.6	56.0		46.0	
.886	35.1	56.0		46.0	
1.063	35.0	56.0		46.0	
1.328	35.3	56.0		46.0	
1.858	34.0	56.0		46.0	
2.035	33.9	56.0		46.0	
2.831	32.3	56.0		46.0	
3.008	32.4	56.0		46.0	
3.096	31.4	56.0		46.0	
4.688	29.8	56.0		46.0	
4.953	29.5	56.0		46.0	
6.102	28.5	60.0		50.0	
9.486	25.6	60.0		50.0	
12.909	23.6	60.0		50.0	
16.113	23.4	60.0		50.0	
19.018	23.6	60.0		50.0	
20.582	23.6	60.0		50.0	
24.139	24.1	60.0		50.0	
28.031	25.1	60.0		50.0	

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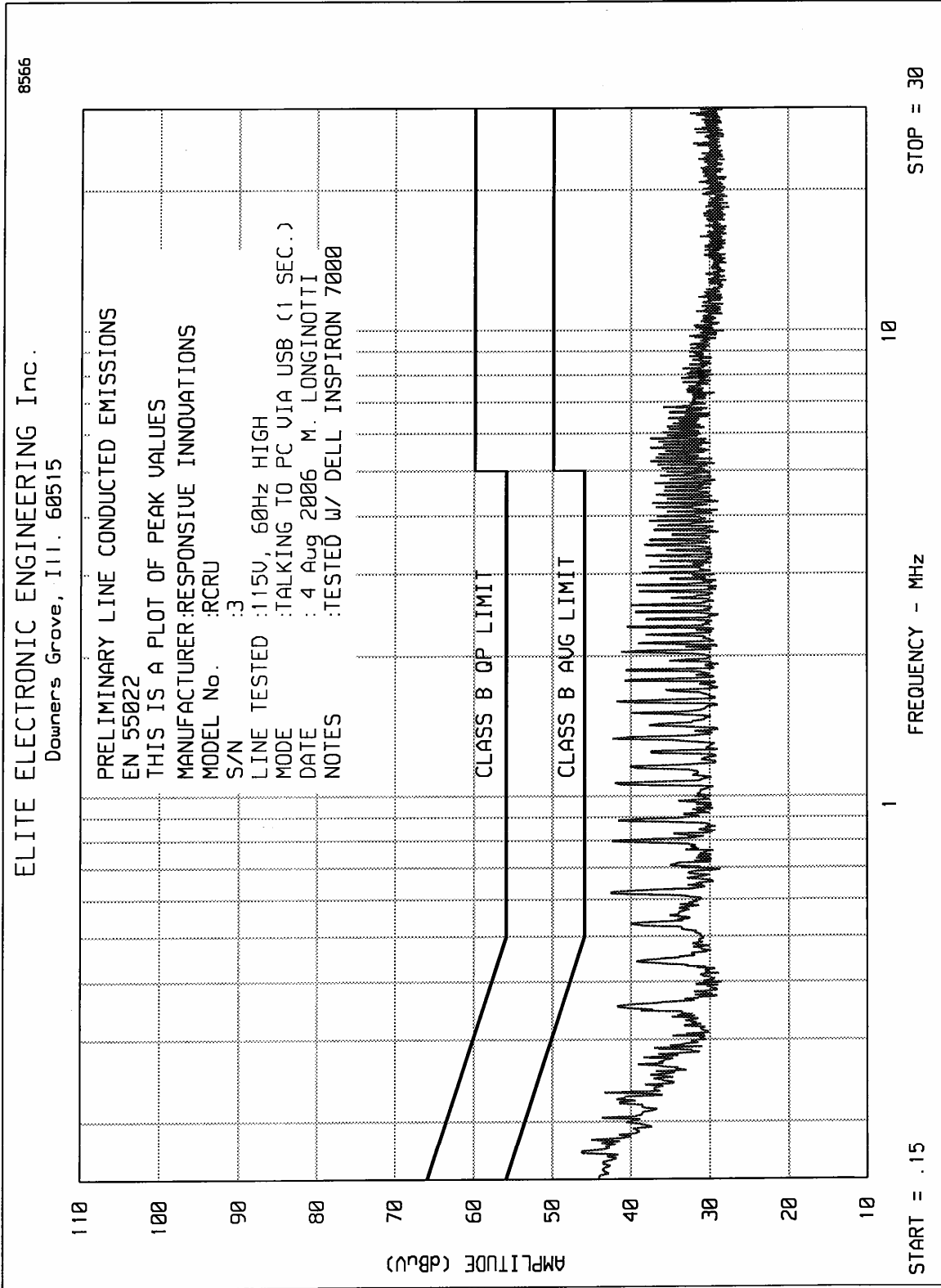


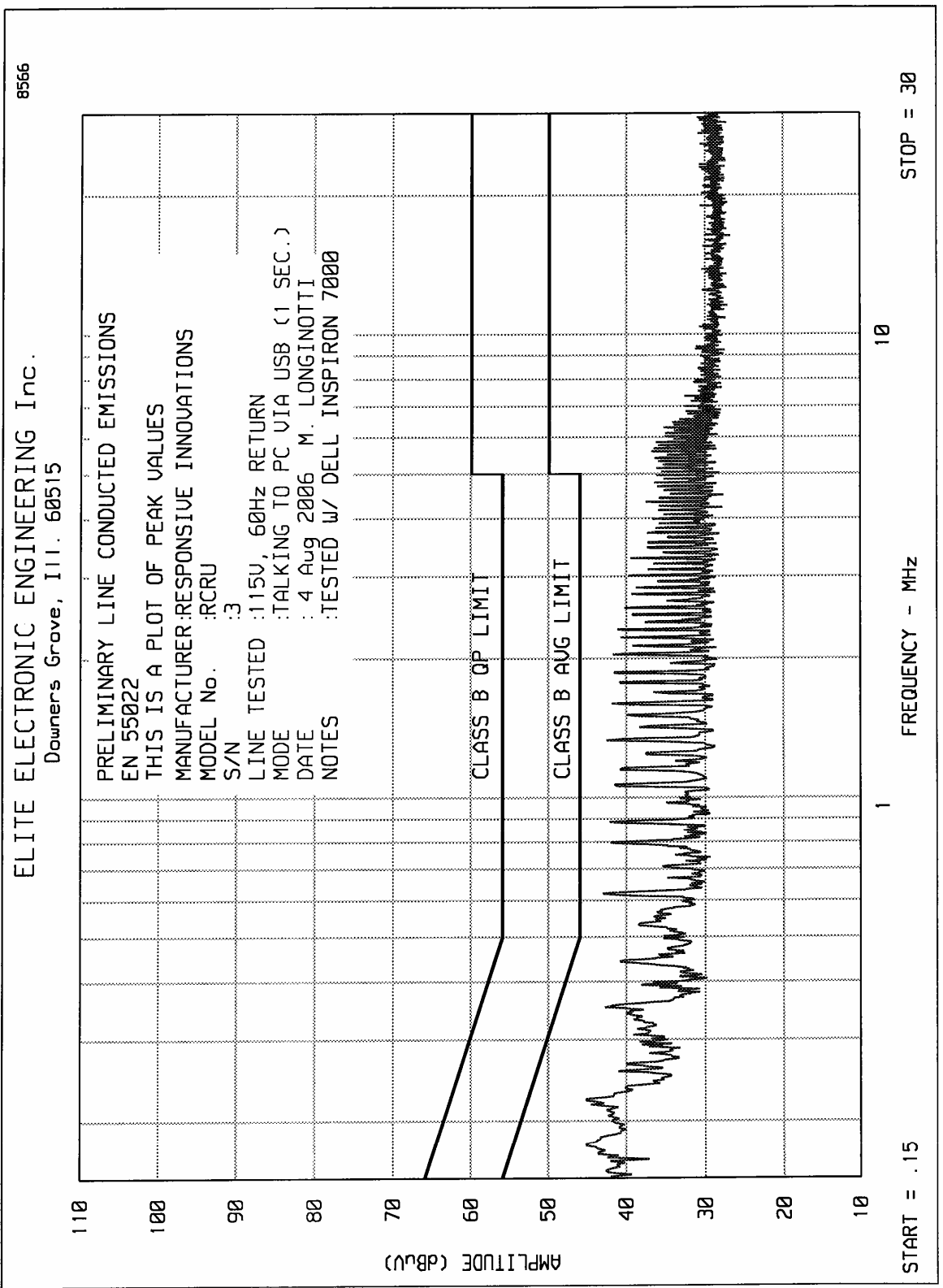
ETR No.  
ELITE ELECTRONIC ENGINEERING CO.

MANUFACTURER : RESPONSIVE INNOVATIONS  
MODEL : DELL INSPIRON 7000  
S/N :  
SPECIFICATION : EN 55022, CLASS B  
TEST : LINE CONDUCTED EMISSIONS  
LINE TESTED : 115V, 60Hz RETURN  
MODE : DESKTOP  
DATE : 4 Aug 2006  
NOTES :  
RECEIVER : HP 8566 w/ HP85650A QP ADAPTOR  
VALUES MEASURED WITH QP DETECTOR USING 9kHz BANDWIDTH

FREQUENCY MHz	METER RDG. dBuV	QP LIMIT dBuV	AVG RDG dBuV	AVG LIMIT dBuV	NOTES
.172	36.8	64.8		54.8	
.266	29.5	61.3		51.3	
.355	35.1	58.8		48.8	
.620	35.7	56.0		46.0	
.797	34.7	56.0		46.0	
.886	35.2	56.0		46.0	
1.593	35.3	56.0		46.0	
2.035	34.5	56.0		46.0	
2.300	34.1	56.0		46.0	
2.565	33.6	56.0		46.0	
3.007	32.1	56.0		46.0	
3.272	31.6	56.0		46.0	
4.244	29.4	56.0		46.0	
4.952	29.1	56.0		46.0	
6.543	26.1	60.0		50.0	
9.284	24.0	60.0		50.0	
12.818	22.9	60.0		50.0	
16.093	22.9	60.0		50.0	
18.978	22.9	60.0		50.0	
20.230	22.9	60.0		50.0	
24.512	22.9	60.0		50.0	
27.848	23.6	60.0		50.0	

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ETR No.  
ELITE ELECTRONIC ENGINEERING CO.

MANUFACTURER : RESPONSIVE INNOVATIONS  
MODEL : RCRU  
S/N : 3  
SPECIFICATION : EN 55022, CLASS B  
TEST : LINE CONDUCTED EMISSIONS  
LINE TESTED : 115V, 60Hz HIGH  
MODE : TALKING TO PC VIA USB (1 SEC.)  
DATE : 4 Aug 2006  
NOTES : TESTED W/ DELL INSPIRON 7000  
RECEIVER : HP 8566 w/ HP85650A QP ADAPTOR  
VALUES MEASURED WITH QP DETECTOR USING 9kHz BANDWIDTH

FREQUENCY MHz	METER RDG. dBuV	QP LIMIT dBuV	AVG RDG dBuV	AVG LIMIT dBuV	NOTES
.178	36.6	64.6		54.6	
.266	29.9	61.3		51.3	
.355	37.9	58.8		48.8	
.621	38.5	56.0		46.0	
.798	37.7	56.0		46.0	
.886	37.7	56.0		46.0	
1.329	38.3	56.0		46.0	
2.037	37.0	56.0		46.0	
2.567	36.0	56.0		46.0	
3.009	35.1	56.0		46.0	
4.248	32.5	56.0		46.0	
4.690	32.5	56.0		46.0	
5.840	32.0	60.0		50.0	
6.284	30.8	60.0		50.0	
9.117	25.7	60.0		50.0	
11.770	23.8	60.0		50.0	
15.828	23.3	60.0		50.0	
19.527	23.4	60.0		50.0	
20.743	23.4	60.0		50.0	
24.848	23.4	60.0		50.0	
26.974	23.8	60.0		50.0	

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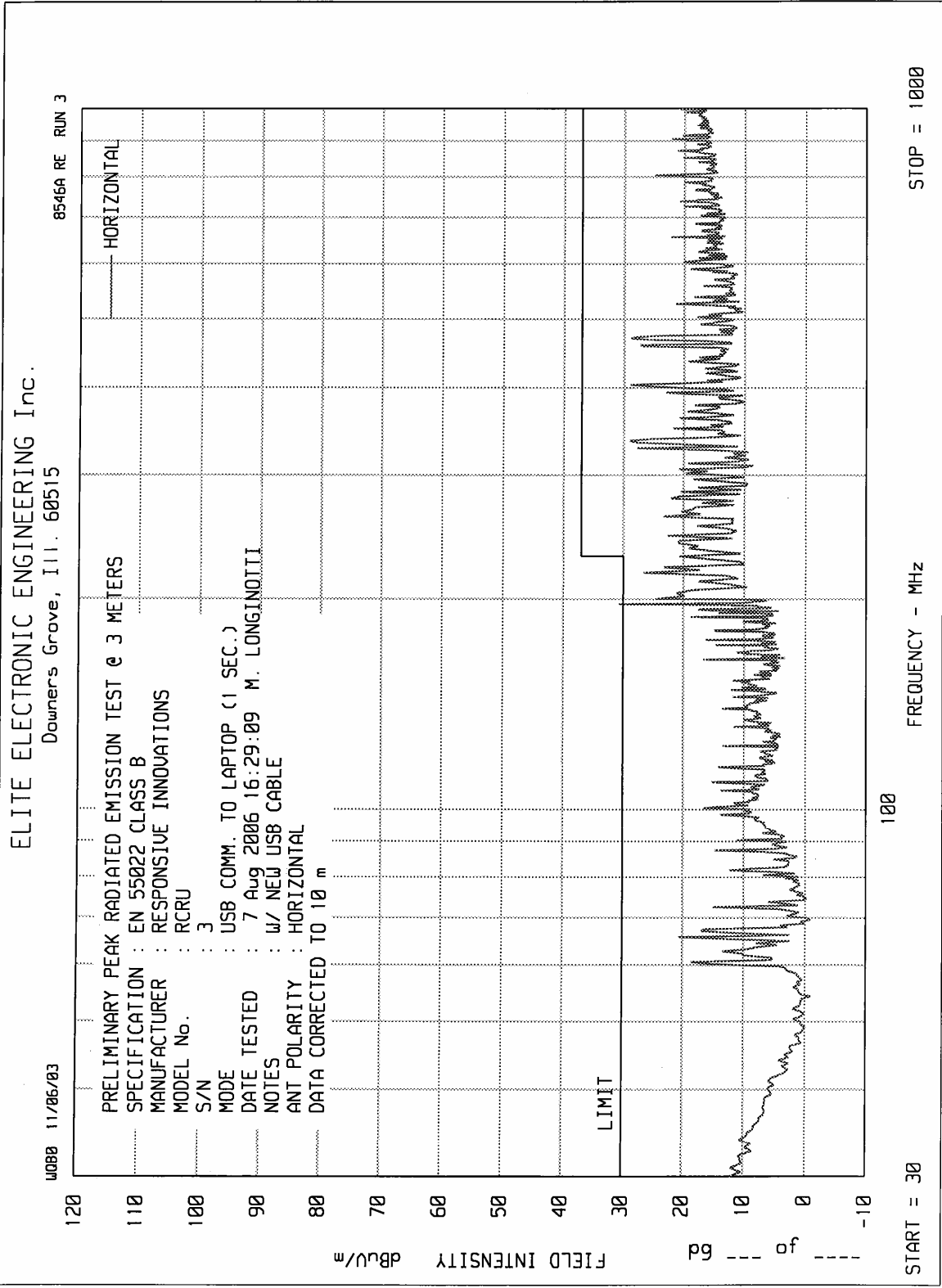


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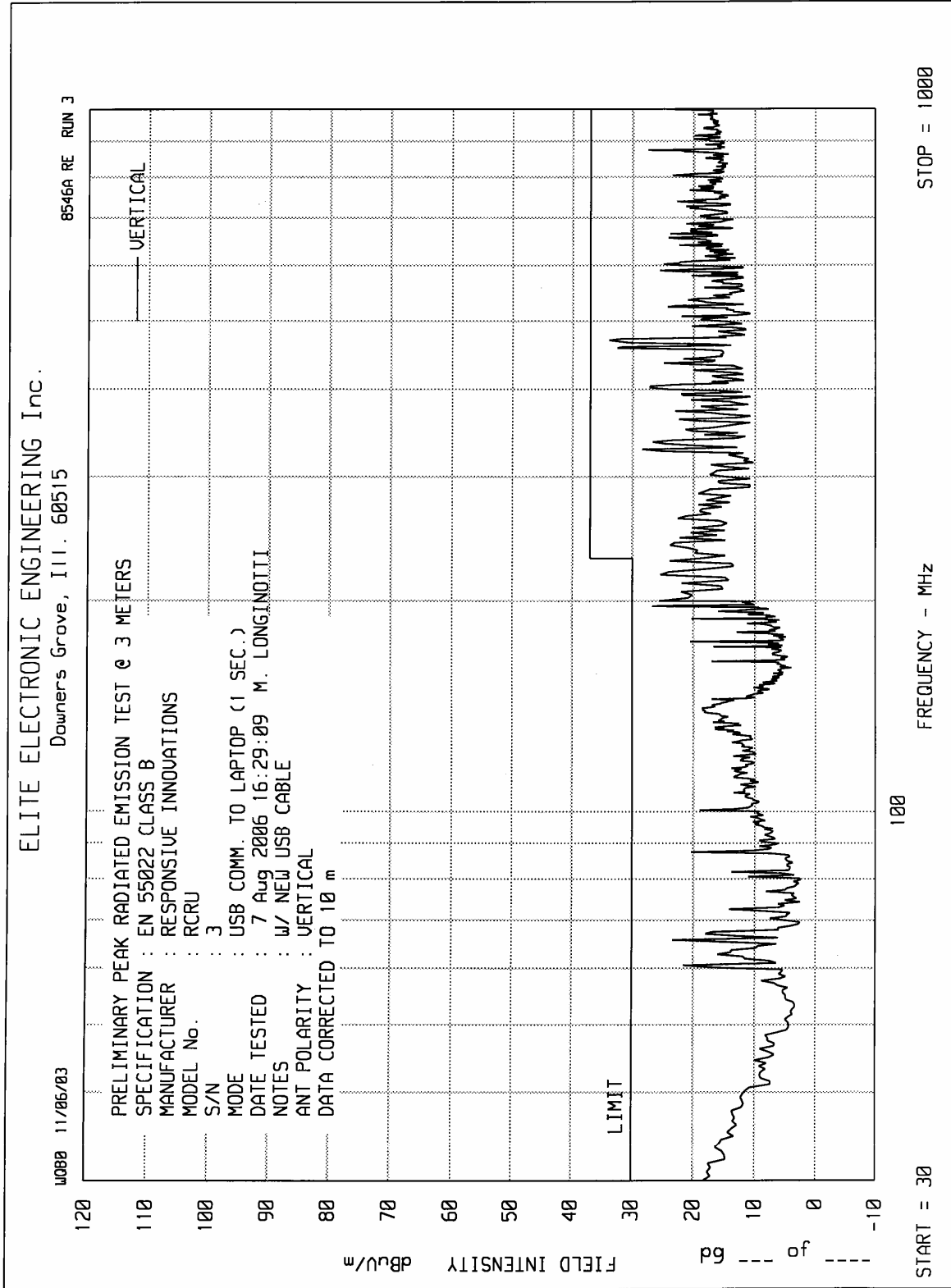
MANUFACTURER : RESPONSIVE INNOVATIONS  
MODEL : RCRU  
S/N : 3  
SPECIFICATION : EN 55022, CLASS B  
TEST : LINE CONDUCTED EMISSIONS  
LINE TESTED : 115V, 60Hz RETURN  
MODE : TALKING TO PC VIA USB (1 SEC.)  
DATE : 4 Aug 2006  
NOTES : TESTED W/ DELL INSPIRON 7000  
RECEIVER : HP 8566 w/ HP85650A QP ADAPTOR  
VALUES MEASURED WITH QP DETECTOR USING 9kHz BANDWIDTH

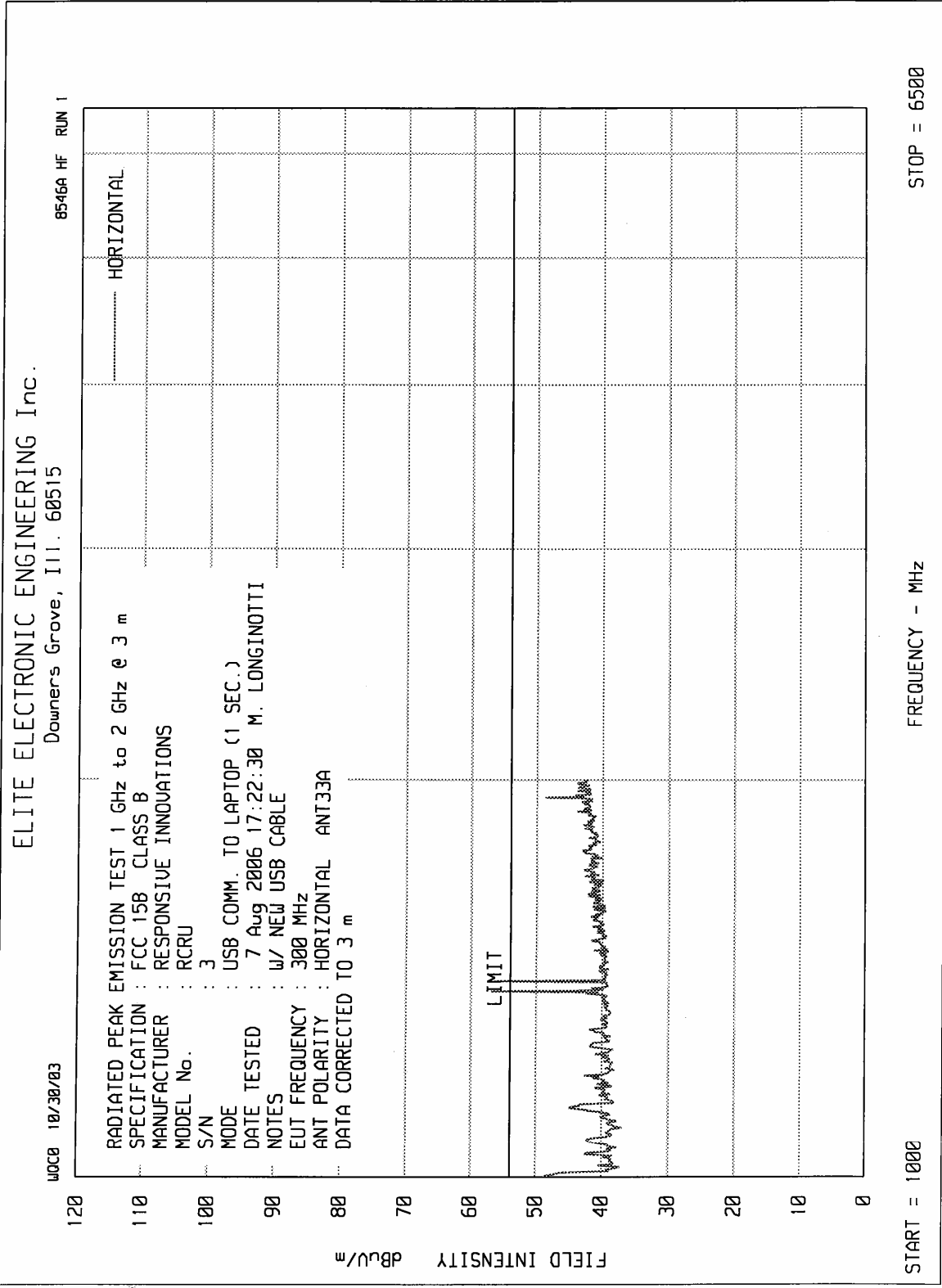
FREQUENCY MHz	METER RDG. dBuV	QP LIMIT dBuV	AVG RDG dBuV	AVG LIMIT dBuV	NOTES
.176	37.9	64.7		54.7	
.266	30.4	61.3		51.3	
.355	37.8	58.8		48.8	
.621	38.4	56.0		46.0	
.798	37.7	56.0		46.0	
.886	37.8	56.0		46.0	
1.328	38.6	56.0		46.0	
2.036	37.1	56.0		46.0	
2.301	36.9	56.0		46.0	
2.567	36.2	56.0		46.0	
3.009	35.2	56.0		46.0	
3.274	34.5	56.0		46.0	
4.336	31.1	56.0		46.0	
4.955	31.8	56.0		46.0	
6.283	30.2	60.0		50.0	
9.290	24.3	60.0		50.0	
12.411	22.9	60.0		50.0	
15.455	22.9	60.0		50.0	
18.818	22.9	60.0		50.0	
20.153	22.9	60.0		50.0	
24.838	22.9	60.0		50.0	
27.162	23.8	60.0		50.0	

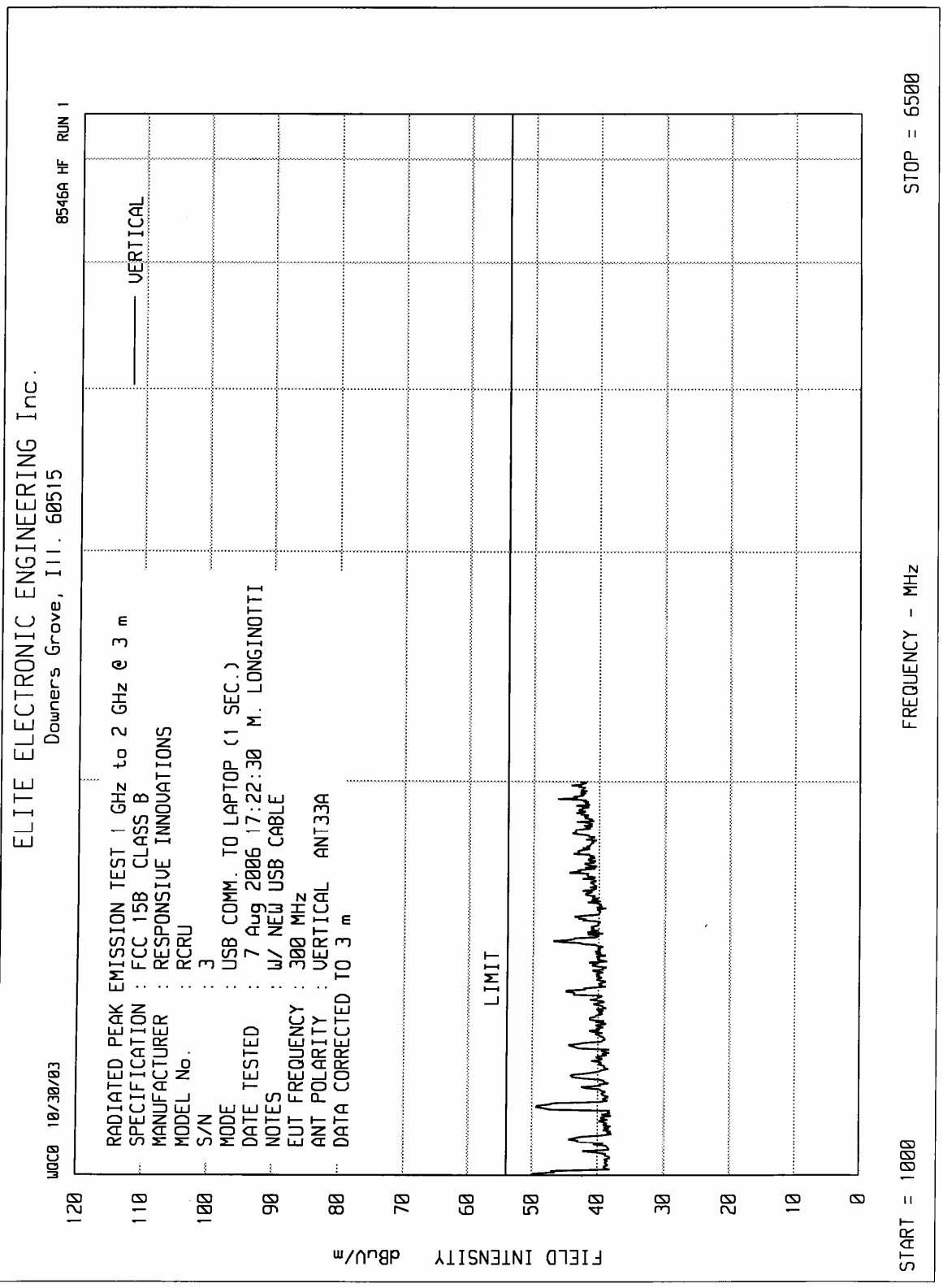
CHECKED BY: *Mark E Longinotti*  
M. LONGINOTTI













ETR No.  
DATA SHEET

8546A  
TEST NO. 3

RADIATED QP EMISSION MEASUREMENTS in a 3 m SEMI-ANECHOIC ROOM  
SPECIFICATION : EN 55022 CLASS B  
MANUFACTURER : RESPONSIVE INNOVATIONS  
MODEL NO. : RCRU  
SERIAL NO. : 3  
TEST MODE : USB COMM. TO LAPTOP (1 SEC.)  
NOTES : W/ NEW USB CABLE  
TEST DATE : 7 Aug 2006 16:29:09  
TEST DISTANCE : 3 m (DATA EXTRAPOLATED TO 10 m)

FREQUENCY MHz	QP READING dBuV	ANT FAC dB	CBL FAC dB	EXT ATTN dB	DIST FAC dB	TOTAL dBuV/m	QP LIMIT dBuV/m	AZ deg	ANT HT cm	POLAR
31.24	5.7	18.9	.4	0.0	-10.5	14.4	30.0	180	120	V
65.14	26.3	7.5	.5	0.0	-10.5	23.8	30.0	270	200	V
86.85	17.7	9.0	.5	0.0	-10.5	16.7	30.0	225	120	V
100.02	19.0	11.1	.5	0.0	-10.5	20.1	30.0	135	120	V
138.51	13.3	11.7	.7	0.0	-10.5	15.3	30.0	135	200	V
144.02	14.6	11.5	.8	0.0	-10.5	16.4	30.0	270	120	V
173.82	17.3	10.1	.9	0.0	-10.5	17.9	30.0	315	340	V
195.43	25.6	10.4	1.0	0.0	-10.5	26.5	30.0	45	340	H
333.17	23.0	14.7	1.4	0.0	-10.5	28.6	37.0	225	120	H
466.26	24.0	17.5	1.6	0.0	-10.5	32.6	37.0	315	200	V
521.14	15.0	18.5	1.6	0.0	-10.5	24.6	37.0	315	340	V
599.55	10.4	19.4	1.7	0.0	-10.5	21.1	37.0	225	200	V
733.13	7.4	20.6	1.8	0.0	-10.5	19.3	37.0	315	120	V
871.29	1.3	22.3	1.9	0.0	-10.5	15.0	37.0	90	200	V
999.97	12.3	23.2	2.0	0.0	-10.5	27.1	37.0	315	340	V

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tested by: Mark E Longinotti  
M. LONGINOTTI



ETR No.

DATA SHEET

HF TEST NO. 1

RADIATED AVG EMISSION MEASUREMENTS >=1000 MHz in a 3 m ANECHOIC ROOM  
 SPECIFICATION : FCC 15B CLASS B  
 MANUFACTURER : RESPONSIVE INNOVATIONS  
 MODEL NO. : RCRU  
 SERIAL NO. : 3  
 TEST MODE : USB COMM. TO LAPTOP (1 SEC.)  
 NOTES : W/ NEW USB CABLE  
 TEST DATE : 7 Aug 2006 17:22:30  
 EUT FREQUENCY : 300 MHz  
 TEST DISTANCE : 3 m (DATA EXTRAPOLATED TO 3 m)  
 ANTENNA : ANT33A

FREQUENCY MHz	AVG READING dBuV	ANT FAC dB	CBL FAC dB	DIST FAC dB	TOTAL dBuV/m	AVG LIMIT dBuV/m	PASS/ FAIL	AZ deg	ANT HT cm	POLAR
1000.11	14.1	25.9	2.0	0.0	42.0	54.0		315	200	V
1132.74	6.9	26.1	2.2	0.0	35.2	54.0		180	120	V
1367.01	-2.3	26.5	2.5	0.0	26.6	54.0		315	200	H
1382.23	-2.4	26.5	2.5	0.0	26.6	54.0		270	200	H
1600.84	-.1	27.2	2.7	0.0	29.8	54.0		315	120	V
1692.50	-2.8	27.6	2.8	0.0	27.5	54.0		45	120	V
1932.90	-.2	28.6	3.0	0.0	31.3	54.0		135	200	H
1980.19	2.1	28.7	3.0	0.0	33.8	54.0		225	200	V

tested by: *Mark E Longinotti*  
 M. LONGINOTTI